FMG-B12/16 Series

Traveling Column, Highly Efficient Profile Grinder

Better flexibility for complex grinding

CHEVALIER®

Grinding Turning / Milling

We shape your ideas.™

Performance. Precision. Reliability. Affordability.

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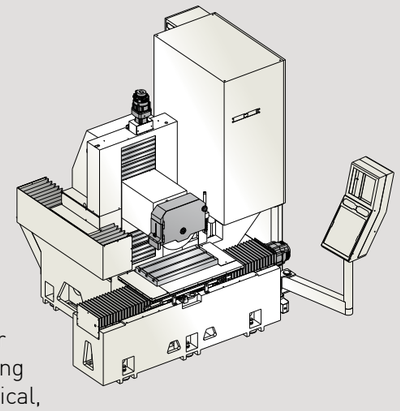


These are the driving forces behind the design of our new Traveling Column High-Efficiency Profile Grinding Machine. They're the standards required by the medical, automotive, mining, semiconductor, aerospace and job shop industries in order to meet current grinding demands and pave the way to smart manufacturing.

Chevalier achieved greater precision by placing the high waist traveling column on the same level as the spindle, creating a solid, rigid machine structure that minimizes vibration, movement, and displacement. Axial movements are programmable in increments of 0.001 mm (0.0001") with little effort.

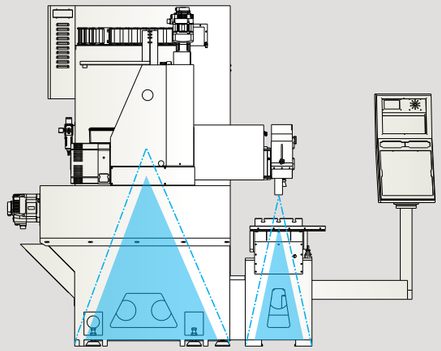
Our grinding machines are designed to be user friendly. Now, our exclusive next generation SMART iControl incorporates production efficiency, which simplifies operation procedures and greatly enhances the performance of Chevalier CNC grinders. Combined with TaskLink, it allows operators to create their own programs for generating complex grinding tasks in a single cycle—without an engineering degree.

The FMG-B1224 is shown with optional accessories.

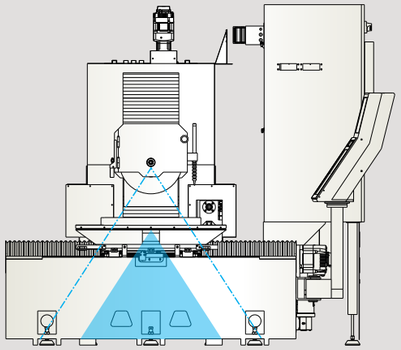
Key Features and Benefits

Optimized structure

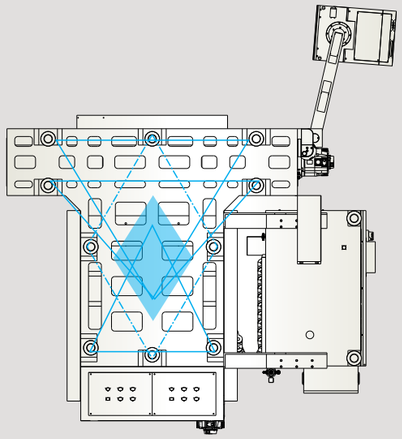
Chevalier's R&D team used precision analysis to design a rigid machine structure that incorporates a traveling column to effectively improve stability for high grinding efficiency and reliable machining accuracy.



To prevent vibration and ensure machining accuracy, the high-strength rigid design is built to withstand the maximum force caused by deformation.



By analyzing processing requirements and experience, we optimized the machine's structural integrity to ensure high performance.



The FMG-B1224 is shown with optional accessories.

Full enclosure design

The fully enclosed design meets safety and environmental regulations by preventing cutting coolant splashing and oil mist dissipation while fully protecting the operator from grinding dangers.

Control Features and Benefits

The Next Generation of SMART iControl

Now, our exclusive next generation SMART iControl delivers a bounty of benefits. Users no longer need to write complicated programs and memorize detailed variables. Instead, they can complete huge, complex processing programs and perform intricate grinding. The powerful computing ability enhances the HMI for better grinding accuracy and with data analysis from network connectivity allows managers to improve the production process and increase output.

The SMART iControl's conversational programming eliminates complicated programming codes

The SMART iControl supports M3 serial communication servo systems, a communication bandwidth increased to 100Mbps and support for 24-bit resolution to improve reading speed and processing smoothness.

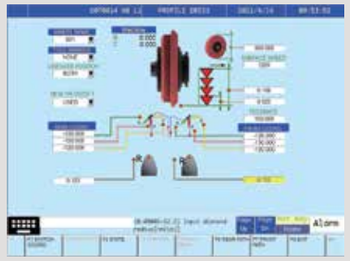
High computing capabilities of 2,000 single blocks per second produces high-precision smoothness, high-precision contour control, machining path smoothing, multigroup working conditions, and quick parameter setting to significantly improve the grinding machine's accuracy and flatness.

Up to eight CNC axes can be controlled for multi-function machining requirements. A single axis group can connect up to four axes or four/five axes for complex forming machining.

The SRI interface communication IO module adds extra IO points (optional) and connects other automation equipment to meet future automation needs.

The SMART iControl comes standard with a 10.4" LCD high color with HMI.*

The three-dimensional graphic image display minimizes text descriptions and looks very similar to the actual workpieces.



*U.S.A. 15" LCD high color touchscreen with HMI is standard

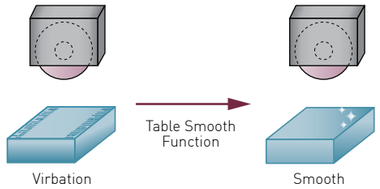
Control Features and Benefits

Intelligent grinding assistant system

Sets parameters based on prioritizing the machining process for precision or speed in order to improve application efficiency.

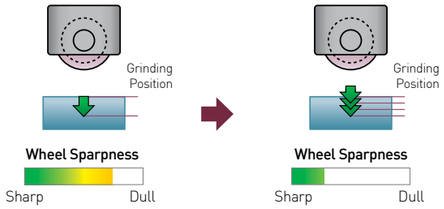
Worktable smoothing function

Reduces reciprocating vibrations caused by the X-axis ballscrew to enhance the surface furnish of a workpiece.



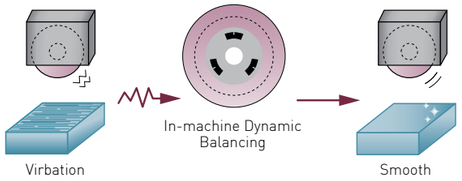
Intelligent auto wheel dressing

This function detects when the wheel needs to reach optimal cutting efficiency regardless of operator experience to avoid poor grinding quality.



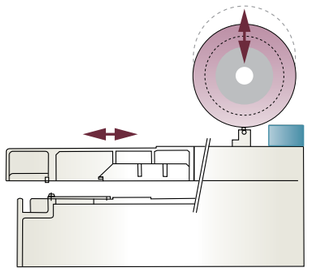
In-machine dynamic balancing

Operator can manually adjust the grinding wheel balance to reduce wheel vibration and eliminate chatter marks to improve grinding quality.



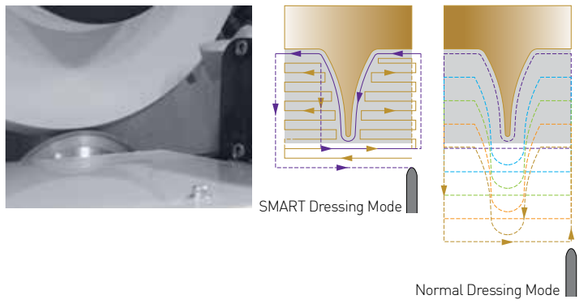
Automatic wheel dressing with compensation

An automatic wheel dressing with compensation feature dresses the wheel automatically during rough and/or fine grinding and again at the end of rough grinding. This enables the machine to run unattended for hours, making it ideal for high-volume production runs, while reducing machining costs and increasing line productivity.

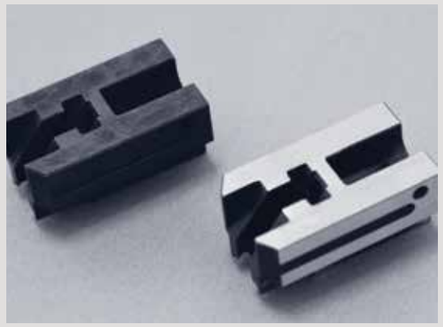


Constant contact dressing mode

A normal dressing mode wastes time by cutting in air. The SMART iControl dressing mode never cuts air because the diamond is in constant contact with the wheel to minimizes dress time.



Applications



These traveling column machines easily adapt to future needs for job shops, medical, automotive, semiconductor and aerospace

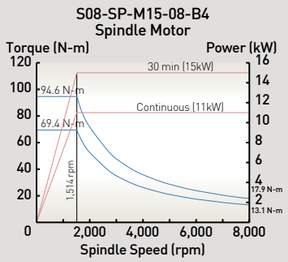
Machine Construction

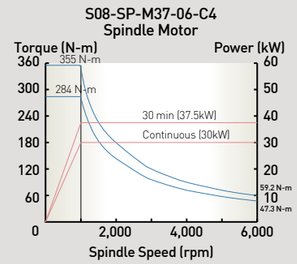
Spindle

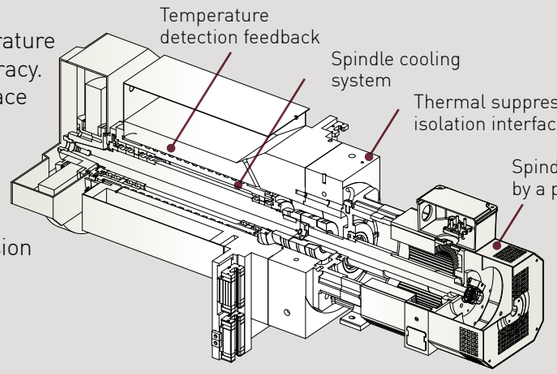
The cartridge-style spindle is suitable for heavy-duty grinding loads. It's supported by six super-precision angular contact bearings (four front pieces and two rear pieces). Runout is within 2 µm. Fully sealed lubrication ensures long life and greater precision.

Air cooling the spindle minimizes temperature increases to further ensure spindle accuracy. The thermal suppression isolation interface can reduce the temperature rise to the lowest level, effectively inhibiting spindle expansion.

Maximum spindle horsepower offers an optional 30 kW (40 HP) for high-precision high efficiency profile grinding.

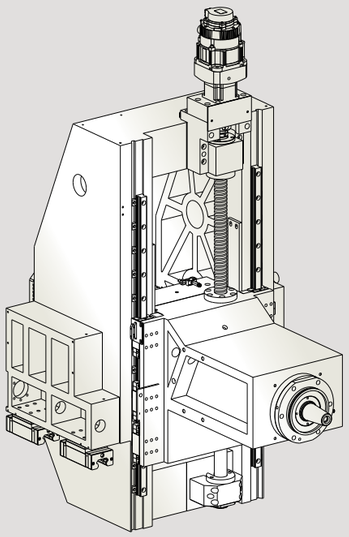




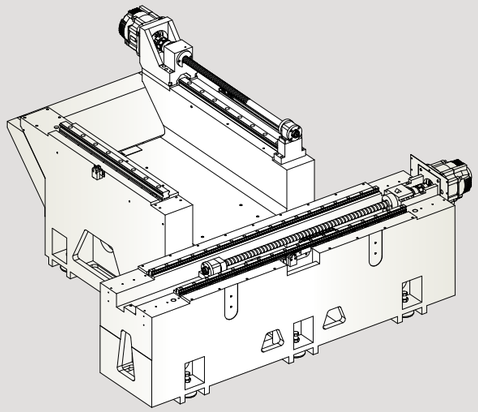


The machine's powerful spindle provides greater accuracy and precision for superior cutting efficiency

The X/Y/Z axis is driven by an AC servo motor and a high-precision ballscrew to maximize control of the table speed and position.



These traveling column high-efficient profile grinding machine is built with a massive, one-piece rigid machine base with a low center to fully support table travel. All castings have undergone FEM analysis to optimize the mechanical design and minimize the machine's weight. The ergonomic machine structure is optimally designed to provide better grinding efficiency and accuracy.



These traveling column machines offers more value for your investment

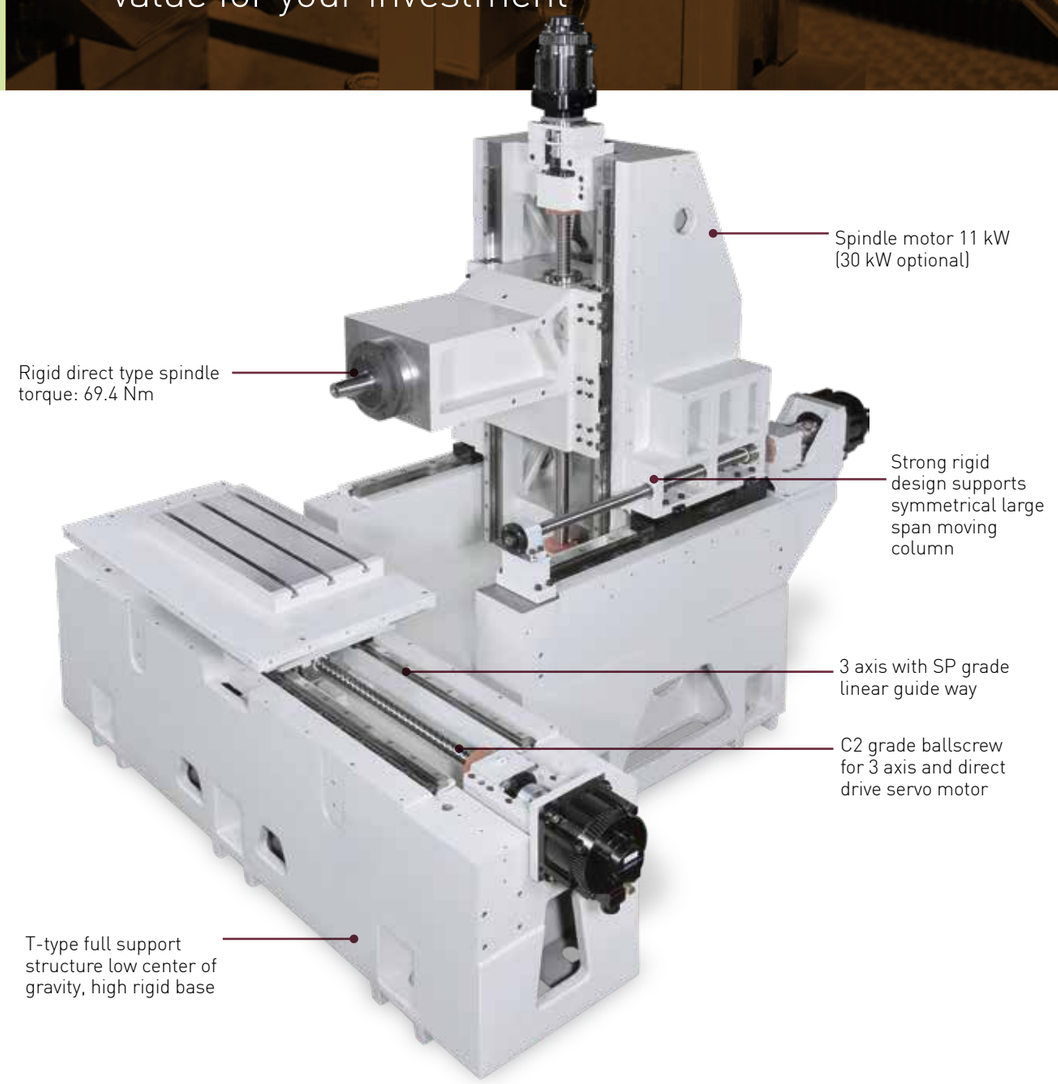
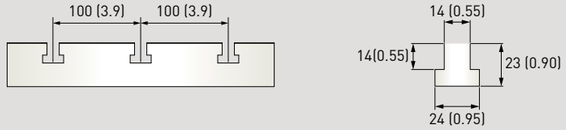
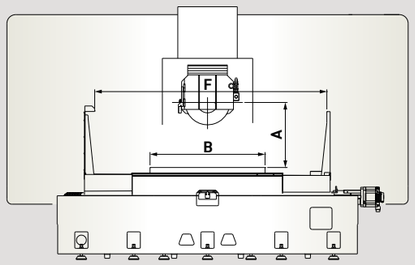


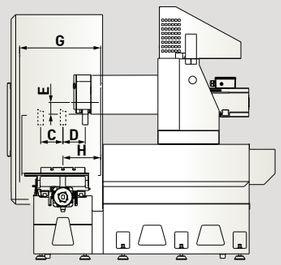
Table and T-Slot Dimensions

Units: mm (")



Max. Working Space





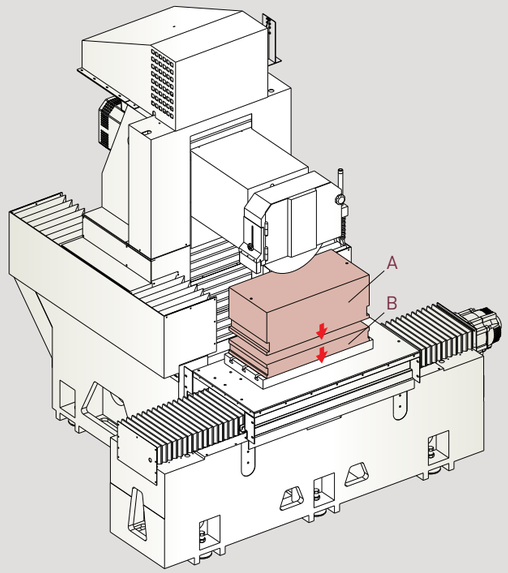
Item	A	B	C	D	E	F	G	H
FMG-B1224	590 (23.2)	600 (23.6)	175 (6.9)	175 (6.9)	106.5 (4.2)	1,650 (65.0)	735 (28.9)	295 (11.6)
FMG-B1640	590 (23.2)	1,000 (39.4)	225 (8.9)	225 (8.9)	106.5 (4.2)	2,100 (82.7)	735 (28.9)	342 (13.5)

Stronger rigidity produces less vibration and smoother movement for years of consistent, reliable operation

Loading Capacity

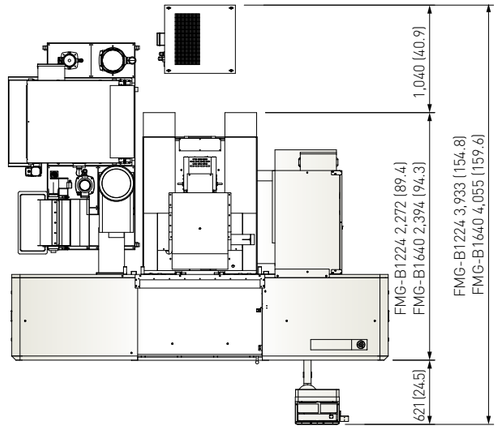
Item	FMG-B1224	FMG-B1640
A	314 kg (690 lbs.)	423 kg (933 lbs.)
B	106 kg (233 lbs.)	247 kg (544 lbs.)
C	420 kg (923 lbs.)	670 kg (1,477 lbs.)

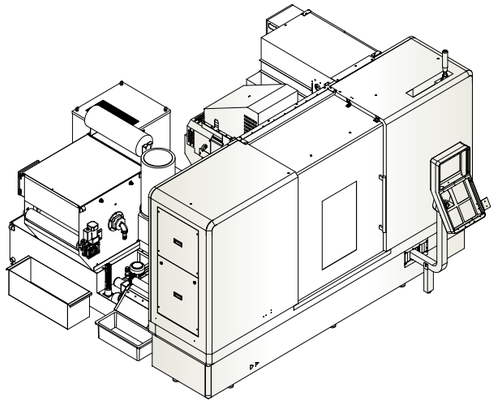
Suggested maximum table loads
A = Workpiece, B = Chuck, C = A+B



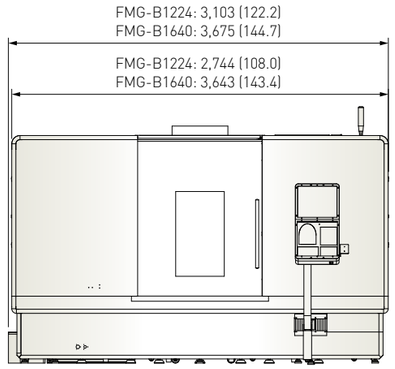
Machine Dimensions

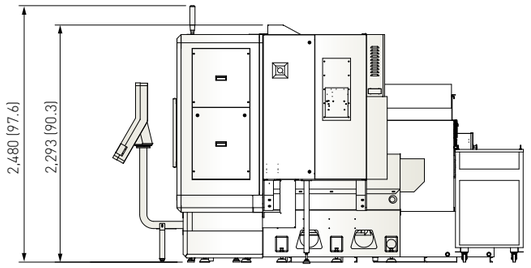
Units: mm (")



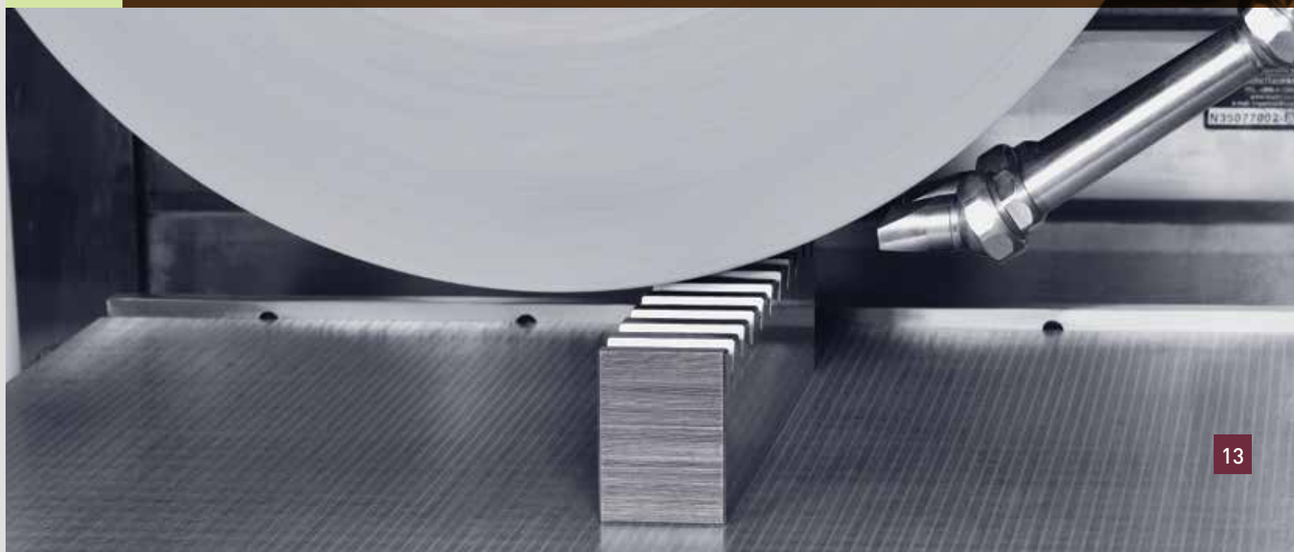


Note: Machine shown with optional accessories.





These traveling column machines allows operators to easily grind complex workpieces



When it comes to affordable traveling column grinders, Chevalier's FMG Series machine is your only choice

Accessories

Standard accessories

- Grinding wheel flange 19~100 mm (0.7"~3.9")
- Grinding wheel (OD x Width x Bore): Ø405 x 50 x Ø127 mm (Ø16" x 2" x Ø5")
- Diamond dresser
- Splash guard
- Fully enclosed splash guard
- Heat exchanger
- Toolbox (includes wheel fixing bolt set, fixing bolt, balancing arbor, riser block, hex wrench set and open end wrench)
- Leveling pad: 10 pieces
- Leveling screws and nuts: 10 sets
- Spanner

Optional accessories

- 15" LCD touch screen with HMI*
- Rotary diamond dresser head-mounted
- Rotary diamond dresser table-mounted
- Grinding wheel dynamic balancing system
- Spindle oil cooling system
- Automatic door system
- Servo-driven coolant nozzle (single axis elevating)
- Auto inline measuring system
- Spindle motor 30 kW (40 HP)
- Coolant system
- Electromagnetic chuck
- CNC rotary table
- Three-point diamond dresser
- Linear scales

*U.S.A.: Standard screen

Specifications

Item	Description		FMG-B1224	FMG-B1640
Control system			SMART iControl	
Capacity	Max. grinding length-longitudinal		610 mm (24.0")	1,010 mm (39.8")
	Max. grinding width-crosswise		305 mm (12.0")	405 mm (15.9")
	Distance between table to spindle centerline		590 mm (23.2")	
	Height from table to ground		810 mm (31.9")	
	Max. table load		420 kg (926 lbs.)	670 kg (1,477 lbs.)
Table	Table size		300 x 600 mm (11.8" x 23.6")	400 x 1,000 mm (15.7" x 39.4")
	T-slots (width x pitch x no.)		14 mm x 100 mm x 3 (0.6" x 3.9" x 3)	
	Table speed		0~25 m/min (0~82 fpm)	
	Max. table travel		710 mm (28.0")	1,100 mm (43.3")
Transverse movement (Z)	Max. travel		350 mm (13.8")	450 mm (17.7")
	Feed speed		0~4,000 mm/min (0~13 fpm)	
	Min. input		0.001 mm (0.0001")	
Wheelhead elevation (Y)	Max. travel		450 mm (17.7")	
	Feed speed		0~3,800 mm/min (0~12.5 fpm)	
	Min. input		0.001 mm (0.0001")	
Spindle	Spindle speed		600~3,600 rpm	
Motors	Spindle motor		11 kW (15 HP)	
	Axis motors (X/ Y/ Z)		X: AC servo 3.9 kW Y: AC servo 2.4 kW Z: AC servo 3.9 kW	X: AC servo 5.9 kW Y: AC servo 2.4 kW Z: AC servo 3.9 kW
Wheel dimension	OD x Width x Bore		Ø405 x 50 x Ø127 mm (Ø16" x 2" x Ø5")	
Power and air requirement	Power required		33 kVA	36 kVA
	Total air consumption	Pressure	6 kg/cm^2 (86 psi)	
		Flow	200 NL/min (7 cfm)	
Machine dimensions	Floor space (W x D x H)		3,103 x 3,933 x 2,480 mm (122.2" x 154.8" x 97.6")	3,675 x 4,055 x 2,480 mm (144.7" x 159.6" x 97.6")
	Net weight		5,800 kg (12,700 lbs.)	6,500 kg (14,300 lbs.)
Accuracy	Positioning accuracy		0.005 mm (0.00019")	
	Repeatability accuracy		0.003 mm (0.00011")	
	Accuracy standard		ISO 1986-1	

All content is for reference only and may be subject to change without prior notice or obligation.

Grinding Machines

SMART Grinding Machines

Turning Machines

Milling Machines

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